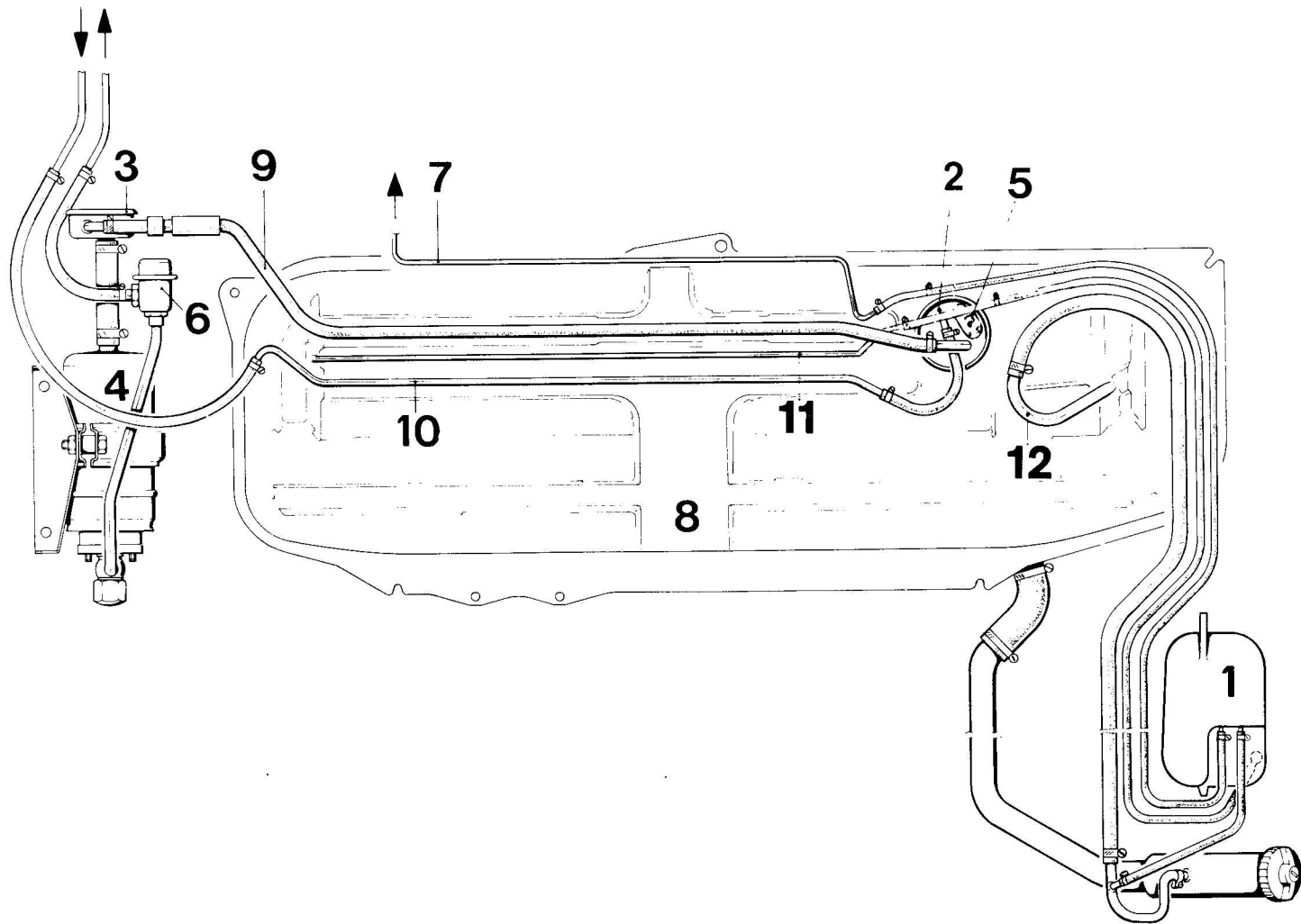


16 Fuel Tank and Lines

...	Fuel tank survey — before 1988 models	16 - 0
...	Fuel tank survey — since 1988 models	16 - 1
16 11 030	Fuel tank — remove and install	16 - 2
120	Expansion tank for fuel tank venting — replace	16 - 4
...	Fuel tank venting system — check	16 - 5
16 12 002	Fuel intake (with integrated transfer pump) — remove and install (before 1988 models)	16 - 8
...	Fuel level sender and intank pump — remove and install/disassemble (since 1988 models)	16 - 9
...	Fuel return pipe — since 1988 models	16 - 10
010	Carbon canister — remove and install or replace	16 - 11
...	Fuel intake / level transmitter — check	16 - 11

16-0

FUEL SUPPLY - BEFORE 1988 MODELS



- 1 Expansion tank
- 2 Fuel intake
- 3 Damper tank
- 4 Electric fuel pump
- 5 Fuel level transmitter
- 6 Diaphragm damper

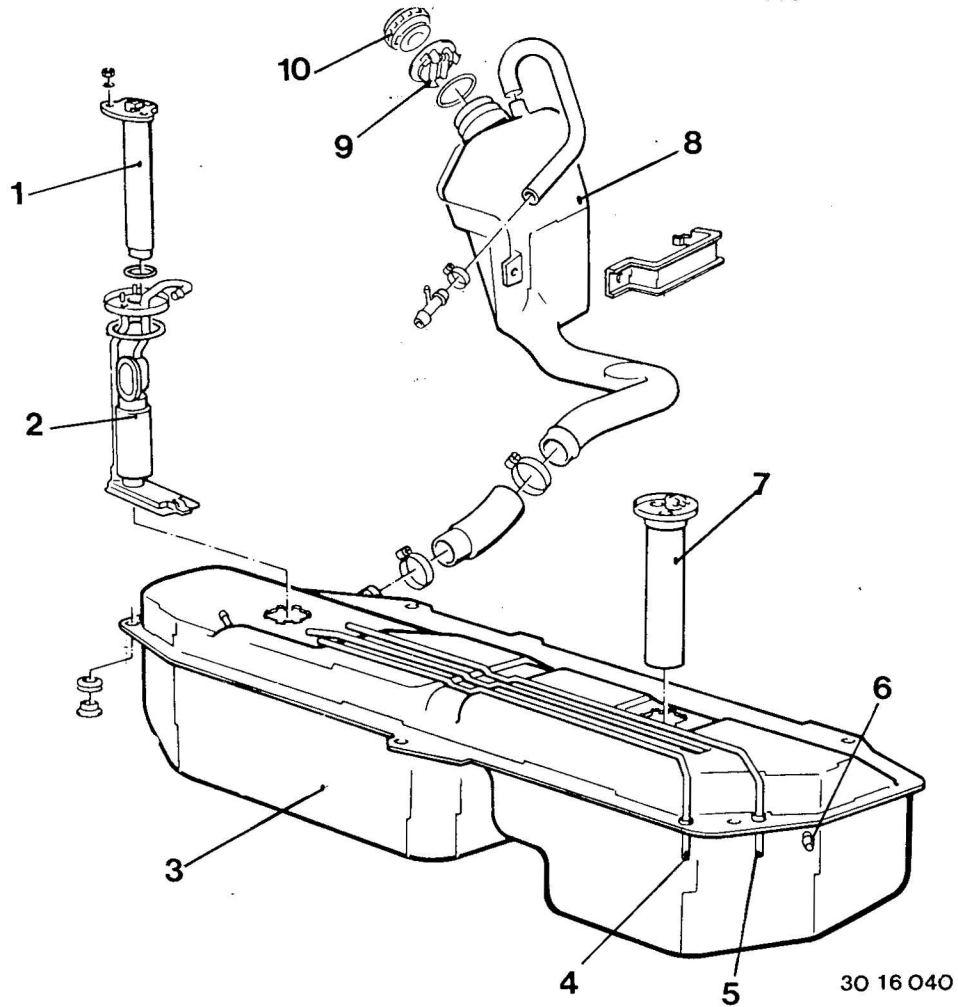
- 7 To carbon canister
- 8 Fuel tank
- 9 Feed hose
- 10 Return hose
- 11 Vent for left tank chamber
- 12 Vent for right tank chamber

30 16 111

16-1

FUEL SUPPLY – SINCE 1988 MODELS

- 1 Fuel level sender for right chamber
- 2 Fuel pump
- 3 Fuel tank
- 4 Vent pipe (to carbon canister in cars with catalytic converter)
- 5 Feed pipe
- 6 Return pipe
- 7 Fuel level sender for left chamber
- 8 Expansion tank
- 9 Filler neck insert (only cars with catalytic converter)
- 10 Tank cap



16 11 030 REMOVING AND INSTALLING FUEL TANK

Pull up rear seat cushion and take off insulation sheet.

Unscrew cover.
Pull off plug receptacle (1).
Loosen and pull off hoses (1 ... 5).
Installation:
Use new hose clamps.

Since 1988 Models:
Unscrew both covers.

Pull off plugs on fuel level transmitter and fuel pump.
Disconnect fuel hoses.

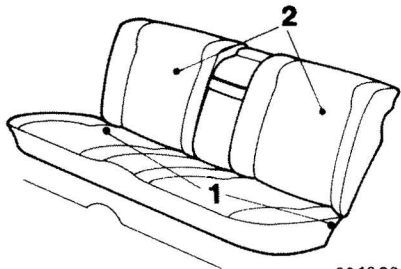
Pull off plug on fuel level transmitter.

Draw off gasoline with a scavenging pump**.
Caution!
Conform with safety precautions and specifications of pertinent country.

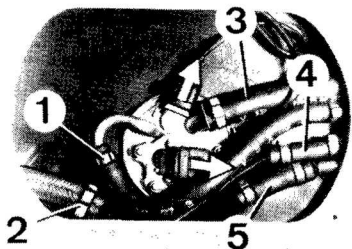
Remove muffler assembly — see 18 12 000.
Remove heat shield and connecting pipe.

Remove propeller shaft — see 26 11 000.
Loosen hose clamp and pull off hose.

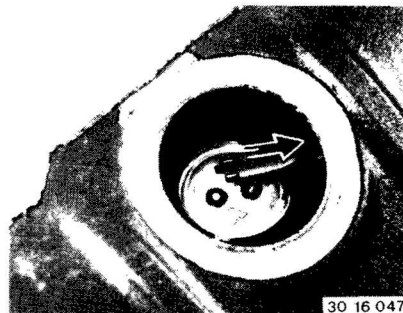
** Source of Supply: HWB



30 16 034



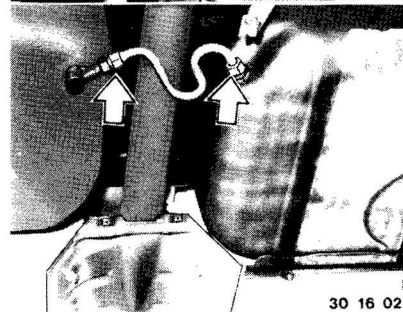
30 16 112



30 16 047



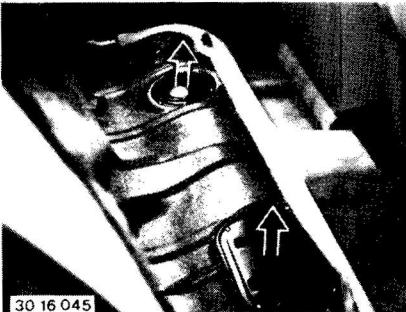
30 16 003



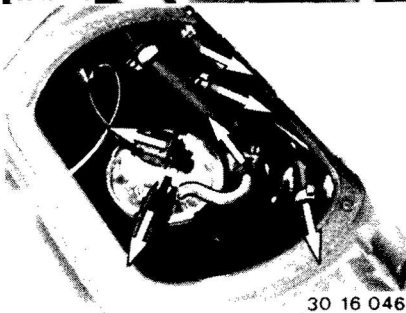
30 16 027



30 16 023

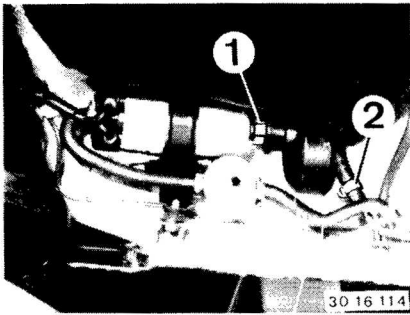


30 16 045

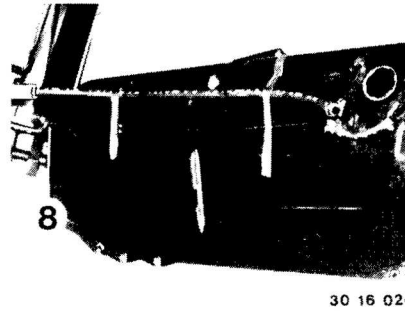


30 16 046

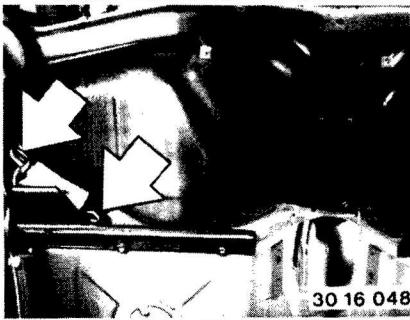
16-3



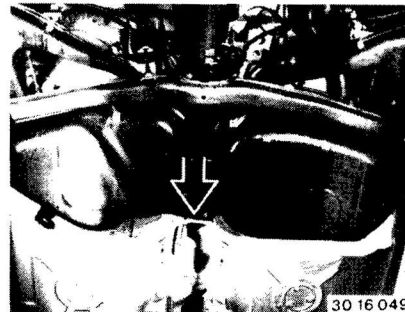
Loosen hose clamps (1 and 2) and pull off hoses.



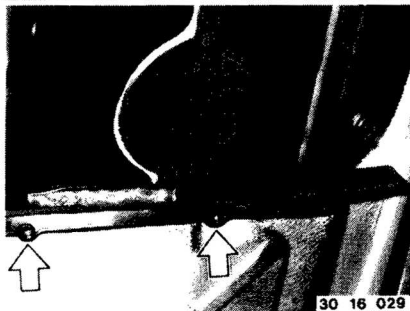
Take off fuel tank on the right-hand side first. Loosen and pull off hose (8). Remove strips of adhesive tape.



Since 1988 Models:
Pull off fuel pipes.
Unscrew fuel filter, if applicable.



Since 1988 Models:
Tilt and lift out fuel tank.



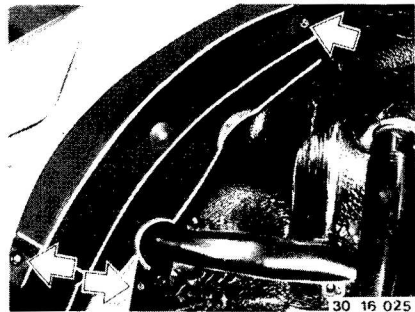
Remove stone guards left and right.



Support tank, if necessary.
Unscrew bolts and nuts.

16 11 120 REPLACING EXPANSION TANK FOR TANK VENTING SYSTEM

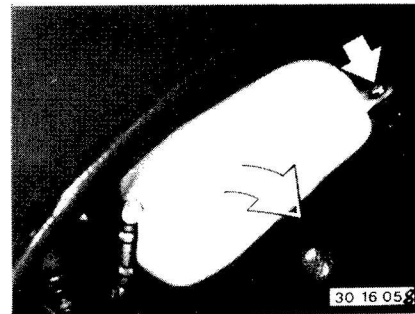
Remove rear wheel – see 36 10 300.
Unscrew wheel house trim panel.
If applicable, draw off gasoline with a
scavenging pump**.



Unscrew expansion tank.
Loosen and pull off hoses.
Installation:
Place pin in guide precisely.
Use new hose clamps.



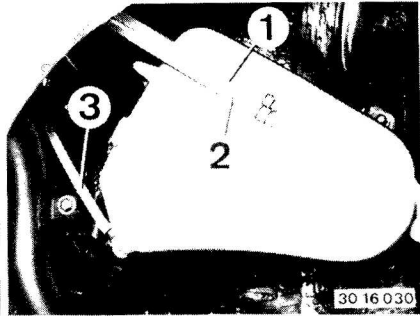
Since 1988 Models:
Unscrew bolt.
Remove expansion tank.



16 11 ... CHECKING VENTING SYSTEM FOR FUEL TANK

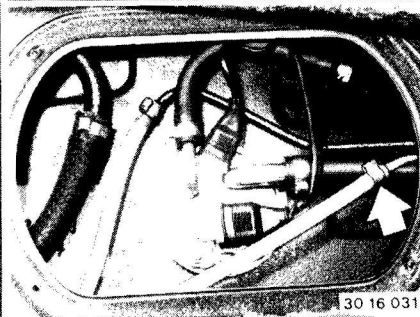
Check connections on expansion tank for tight fit and leaks.

- 1 Pipe to outdoors
- 2 Pipe to filler neck
- 3 Pipe to fuel tank



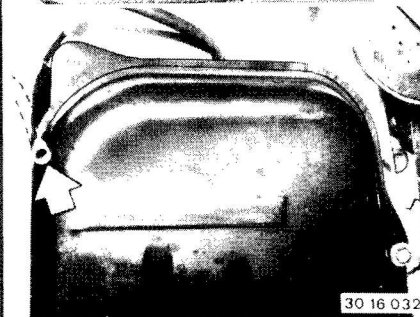
30 16 030

Check connection for venting pipe.



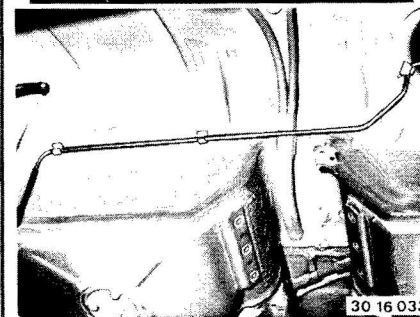
30 16 031

Checking routing and flow of vent hose.



30 16 032

Cars with Catalytic Converter:
Route vent hose in direction of engine in side member area and check flow.



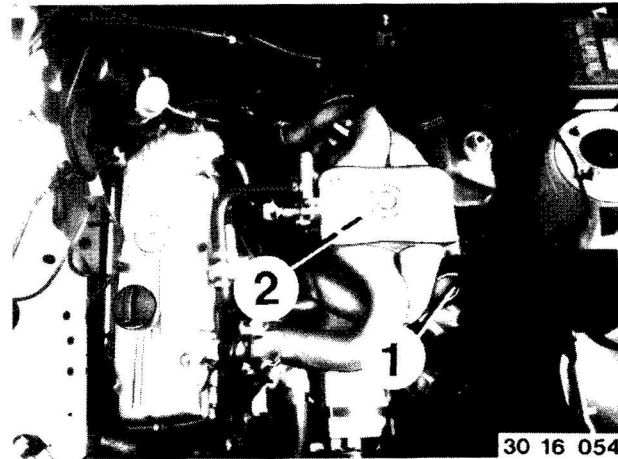
30 16 033

Cars with Catalytic Converter:
If applicable, remove and install / check tank venting valve.

(M 10)

1 = Carbon canister

2 = Check valve

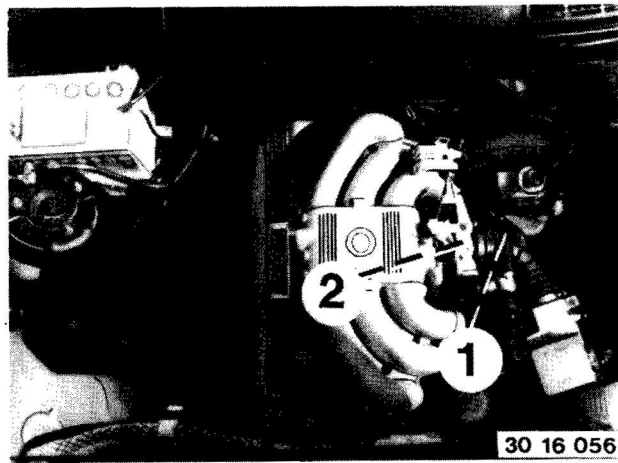


30 16 054

(M 20)

1 = Carbon canister

2 = Tank venting valve



(S 14)

1 = Carbon canister

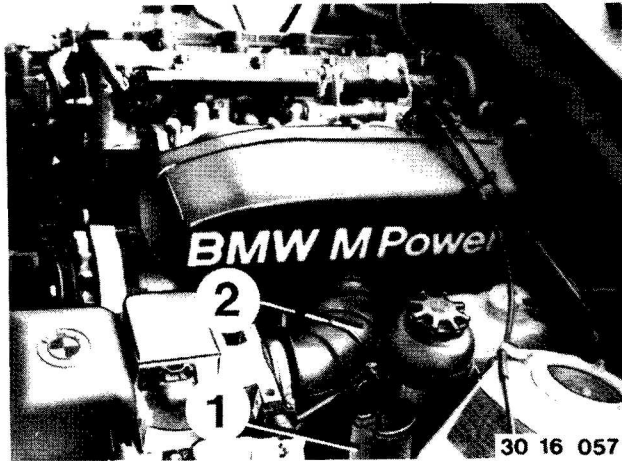
2 = Tank venting valve

Lift out plug for all previously mentioned models.
Pull off hoses.
Lift out tank venting valve.

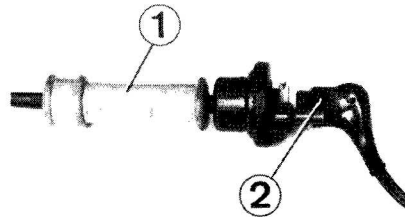
Connect vacuum hose (1) on 0.8 mm (0.031") diameter neck.
Supply 12 V voltage to tank venting valve (2) (lead 61 1 440).

Select multimeter function 21 on BMW Service Tester.
Adjust vacuum to 600 ± 100 mbar.
Then switch off.

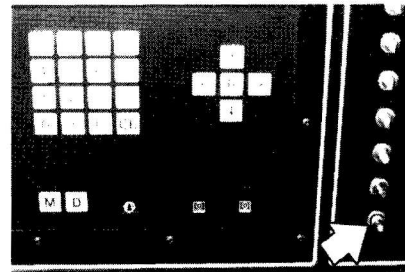
Pressure should not drop by more than 50 mbar during the test time of about 20 seconds.
Replace tank venting valve, if pressure drops by more than 50 mbar.



30 16 057



32 16 035



32 16 036

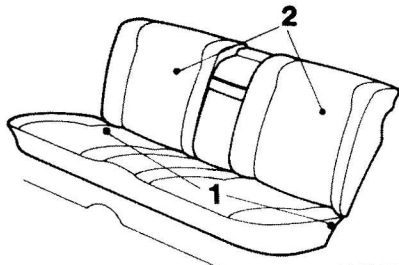
16 12 002 REMOVING AND INSTALLING FUEL INTAKE (with Integrated Fuel Transfer Pump) – Before 1988 Models –

Pull up rear seat cushion (1) and take off insulation sheet.



30 16 109

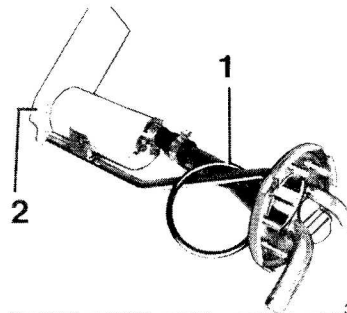
Turn fuel intake counterclockwise and pull out carefully.



30 16 034

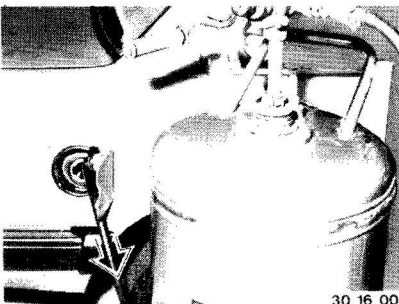
Draw off about 10 liters (10 quarts) of gasoline from a full fuel tank with a scavenging pump** or unscrew plug and drain this amount.

Caution!
Conform with safety precautions and pertinent country legislation.



30 16 110

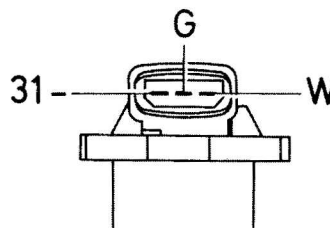
Installation:
Use a new seal (1).
Check filter screen (2) for dirt, cleaning if necessary.



30 16 003

Unscrew cover.
Pull off plug.
Disconnect hoses (1 and 3).

Installation:
Use new hose clamps.



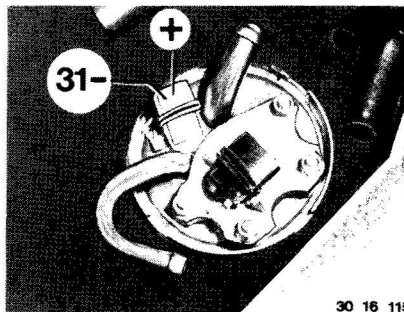
28 16 131

Checking Fuel Level Sender:
Measure resistance* on terminals 31 and G with float in "EMPTY" and "FULL" positions.
Resistance curve must not have breaks.
Connection W must have ground with the float in "EMPTY" position.

G = Sender resistance
W = Warning lamp

Loosen and pull out fuel level sender slowly.

Installation:
Use a new seal.

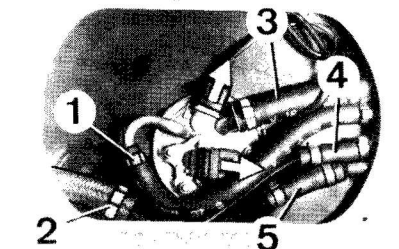


30 16 115

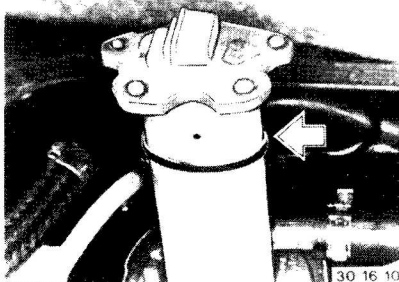
Checking Fuel Transfer Pump:
Measure power consumption* of pump.
If necessary, check the delivery pressure*.

* See Specifications

** Source of Supply: HWB



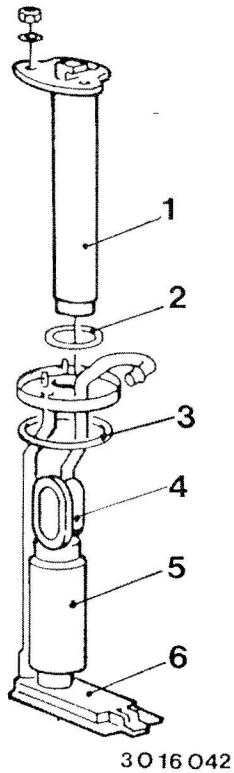
30 16 112



30 16 108

16 12 . . . REMOVING AND DISASSEMBLING FUEL LEVEL SENDER AND INTANK PUMP
— Since 1988 Models —

Fuel Level Sender and Intank Pump Survey:

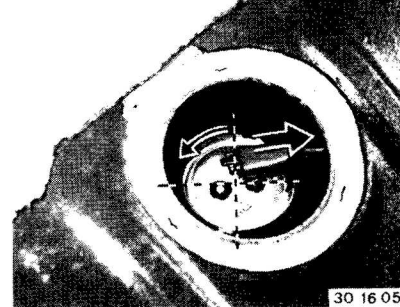
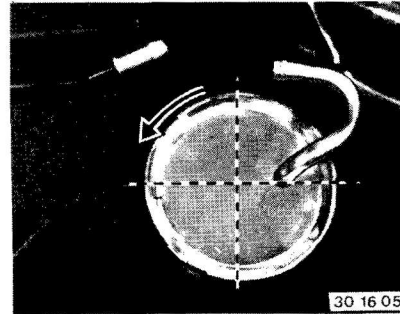
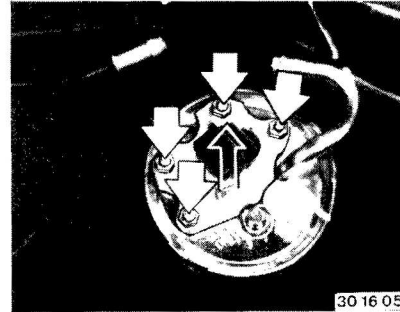
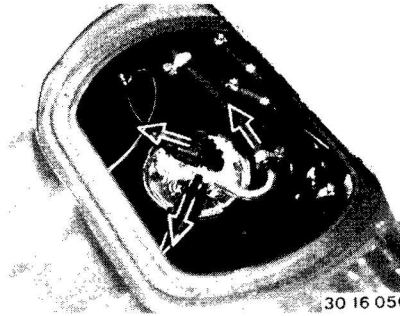


- 1 = Fuel level sender
- 2 = Gasket
- 3 = Gasket
- 4 = Pressure damper
- 5 = Fuel pump
- 6 = Fuel filter screen

Check fuel pressure and delivery rate — see Group 13.

Check fuel level sender* — also refer to plug connections on page 16 - 8.

* See Specifications



If necessary, draw off gasoline partially with a scavenging pump**. Lift out rear seat cushion — see Group 52. Lift out insulation sheet partially. Unscrew cover. Pull off plug and hose.

Unscrew screws. Lift out fuel level sender.
Installation:
Replace gasket.

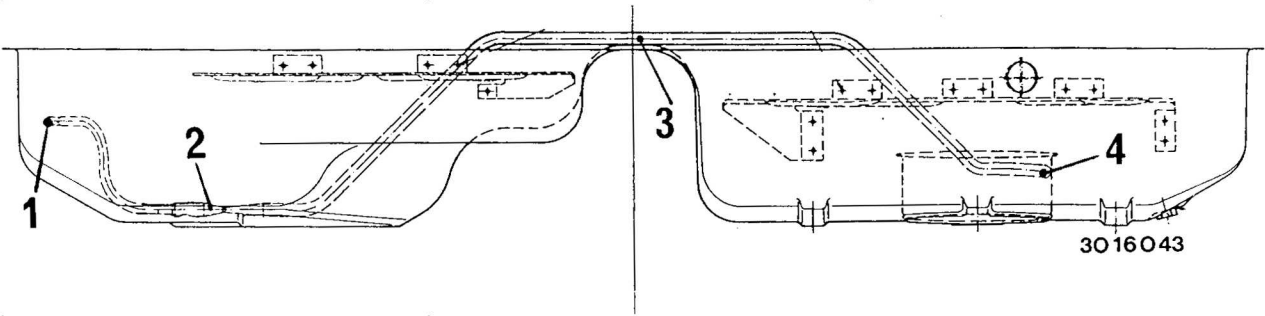
Turn fuel intake counterclockwise and pull out carefully.
Installation:
Replace gasket.

Unscrew cover. Turn fuel level sender for right tank chamber counterclockwise and pull out carefully.
Installation:
Replace gasket.

** Source: HWB

16 12 ... FUEL RETURN PIPE - Since 1988 Models -

Fuel Tank Survey
(only the bottom tank plate is shown in the
side view for better view)

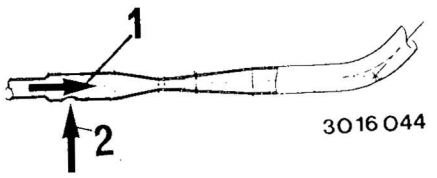


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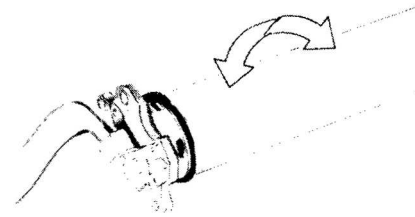
- 1 = Return pipe in tank (left tank chamber)
- 2 = Ejector
- 3 = Overflow pipe (right tank chamber)
- 4 = Splash shell

Overflow between the left and right tank
chambers functions to the ejector principle.

- 1 = Fuel return from engine
- 2 = Inlet for fuel from left tank chamber



3016044



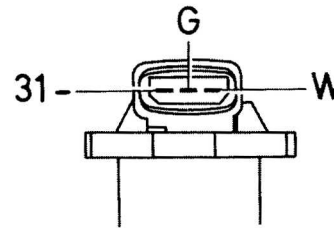
Swing fuel level sender slowly and measure resistance* with float in EMPTY and FULL positions. Resistance must change continuously while moving the float.

733 16 010

16 12 010 REMOVING AND INSTALLING OR REPLACING CARBON CANISTER

Pull off hoses:

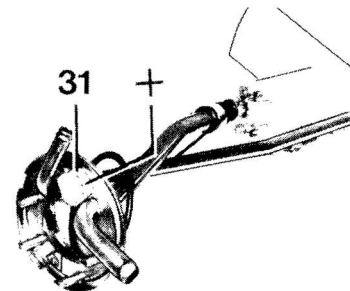
Installation:
Use new hose clamps.



28 16 131

There should be flow between W and 31 in EMPTY float position – approx. 0 ohm.

Loosen clamp.
Take off carbon canister.



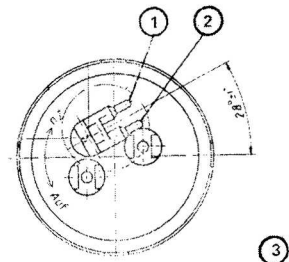
733 16 009

Power supply for the fuel transfer pump comes via the fuel pump relay (relay 1) – see engine wiring diagram. To check, measure power input* and delivery pressure*.

16 12 . . . CHECKING FUEL LEVEL SENDER AND FUEL TRANSFER PUMP

Connect ohmmeter (M 06) of BMW Service Tester on terminals G and 31. Measure the resistance*.

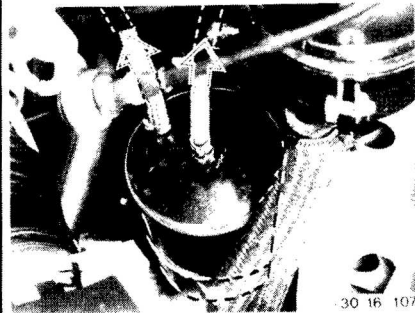
* See Specifications



30 16 059

Fuel Level Sender for Left Tank Side: Connect ohmmeter on terminals 1 and 2. Measure the resistance.

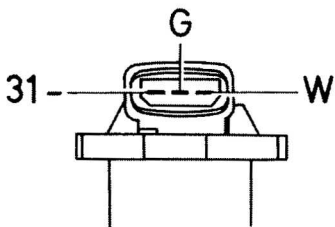
* See Specifications



30 16 107



30 16 106



28 16 131